Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Nationwide Number Portability	)	WC Docket No. 17-244
	)	
Numbering Policies for Modern Communications	)	WC Docket No. 13-97

COMMENTS OF CENTURYLINK

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TABLE OF CONTENTS

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I. INTRODUCTION AND SUMMARY.

CenturyLink[1] files these comments in response to the Notice of Proposed Rulemaking and Notice of Inquiry[2] released October 26, 2017 in the above-referenced dockets. CenturyLink appreciates the FCC's exploration of changes to long-standing policies in the interest of leveling the competitive playing field among service providers and improving the consumer experience through expanded number portability. Here, the NPRM proposes some changes to well-established dialing parity and N-1 querying requirements in the interest of facilitating nationwide number portability ("NNP"), which is then discussed in the NOI.[3] While CenturyLink does not generally oppose the proposed changes to the dialing parity and N-1 querying requirements, the context of these proposed changes causes CenturyLink great concern. Forcing providers to retrofit legacy TDM networks to accommodate NNP would be a monumental undertaking that would reduce broadband investment and delay the IP transition when, ironically, the end-state network that is the ultimate goal of the IP transition will itself be inherently NNP-capable. As such, CenturyLink encourages the Commission to pursue moving towards NNP in a measured

[1] These comments are filed by and on behalf of CenturyLink, Inc. and its subsidiaries.

[2] *Nationwide Number Portability; Numbering Policies for Modern Communications*, WC Docket No. 17-244 and WC Docket No. 13-97, Notice of Proposed Rulemaking and Notice of Inquiry, 32 FCC Rcd 8034, FCC 17-133 (rel. Oct. 26, 2017) ("NPRM" or "NOI").

[3] NPRM, 32 FCC Rcd at 8038 ¶ 12.

way that avoids triggering substantial costs and burdens for legacy networks or delaying the IP transition and the concomitant benefits a modernized network will bring. Proceeding in this manner will strike the right balance among important Commission objectives and best serve the public interest.

II. CENTURYLINK SUPPORTS THE NPRM'S PROPOSAL TO ELIMINATE REMAINING INTEREXCHANGE TOLL PARITY DIALING REQUIREMENTS.

Recognizing the decline of stand-alone long distance and the trend toward all-distance services,[4] the NPRM proposes to forbear from the dialing parity requirements of section 251(b)(3) as applied to interexchange carriers.[5] In the *2015 USTelecom Forbearance Order*, the Commission exercised its forbearance authority to free incumbent local exchange carriers ("ILECs") from these dialing parity provisions, leaving limited exceptions.[6] The NPRM proposes extending this forbearance to competitive carriers, and CenturyLink supports this extension. This step is appropriate in light of the state of the long distance market and the similarities between incumbent and competitive carriers in this space.

III. CENTURYLINK QUESTIONS THE UTILITY OF ELIMINATING THE N-1 QUERY REQUIREMENT AT THIS TIME.

The NPRM also proposes to eliminate the N-1 query requirement in order to avoid injecting inefficiencies into the routing system as networks move toward NNP.[7] The N-1 query requirement mandates that the carrier immediately preceding the terminating carrier (the N-1

[4] NPRM, 32 FCC Rcd at 8040-41 ¶ 17.

[5] NPRM, 32 FCC Rcd at 8043 ¶ 26.

[6] NPRM, 32 FCC Rcd at 8042-43 ¶ 25 (citing *Petition of USTelecom for Forbearance Pursuant to 47 U.S.C. § 160(c) from Enforcement of Obsolete ILEC Legacy Regulations That Inhibit Deployment of Next-Generation Networks et al.*, Memorandum Opinion and Order, 31 FCC Rcd 6157 (2015) (*2015 USTelecom Forbearance Order*)).

[7] NPRM, 32 FCC Rcd at 8039-40 ¶ 15.

carrier) be responsible for ensuring that the number portability database is queried.[8] As explained in the NPRM, the N-1 requirement was recommended by the North American Numbering Council ("NANC") and implemented decades ago to ensure that carriers would know when a database had been queried, that costs of queries were distributed between interexchange and originating providers, and that calls would be routed efficiently.[9] However, in an NNP environment, it will be more difficult for carriers to ascertain whether they are the N-1 carrier and some calls stand to be routed multiple times without changes to the existing system.[10]

CenturyLink agrees that, upon implementation of NNP, it likely makes sense to alter the N-1 query requirement to avoid routing inefficiencies. However, we are not at that point today and it seems premature to undertake this step until NNP implementation is more imminent. The current system generally works well and provides certainty to providers as to their roles and responsibilities. Additionally, the current N-1 query rule does not prohibit alternate query arrangements. In fact, most VoIP providers perform LNP queries upon origination without consideration of N-1 since there are no presubscribed interexchange carriers in VoIP networks. Altering the current system stands to shift more costs to originating carriers of legacy TDM networks, as the querying responsibility that has been long-shared between originating and interexchange carriers would seemingly fall solely on originating carriers. Some originating carrier networks risk being overloaded at the tandem if required to perform these additional queries. In this case, these carriers may need to modify their networks to accommodate this load

[8] NPRM, 32 FCC Rcd at 8039 ¶ 14.

[9] NPRM, 32 FCC Rcd at 8039-40 ¶ 15.

[10] For example, in an NNP environment a call may appear to be interLATA such that an interexchange carrier would perform the N-1 query, but in reality that call may be intraLATA such that the originating carrier should be tasked with performing the query to avoid routing inefficiencies. *See* NPRM, 32 FCC Rcd at 8039-40 ¶ 15, 8041 ¶ 20.

and increase their capacity to handle additional queries. Moreover, under the current system, originating carriers are able to subscribe to only the regional Number Portability Administration Center ("NPAC") database(s) they need based on their respective footprint since interexchange carriers generally perform the N-1 queries for non-local calls. Under the NPRM's proposal, however, originating carriers would need to subscribe to all regional NPAC databases since these providers will be tasked with performing queries for all calls – local and long distance – not just local calls or calls that originate and terminate within a single NPAC region. And if originating carriers do not step up to perform this function in the absence of the N-1 query rule, disputes may arise and inefficiencies may result if the queries are not performed. All of these factors would increase costs for originating providers or cause other burdens, but importantly would provide little, if any, benefit to consumers until NNP is implemented. Because the benefits of eliminating the N-1 query will not be realized until NNP implementation, it makes little sense to trigger the costs associated with eliminating the N-1 query until NNP implementation is more imminent and the methodology to achieve NNP is better defined. If the commercial agreement approach is adopted, for example, this action may not even be necessary. As discussed below, given the substantial complexities associated with implementing NNP on legacy TDM networks, it seems premature to take this preliminary step at this time.

IV. THE COMMISSION MUST CAREFULLY WEIGH THE COSTS AND BENEFITS OF NNP IMPLEMENTATION FOR LEGACY TDM NETWORKS.

A. The Network and System Costs Associated with Implementing NNP on Legacy TDM Networks Are Staggering.

The NOI seeks comment on several NNP implementation models outlined by The Alliance for Technical Industry Solutions ("ATIS") last year.[11] These models include: (1)

[11] *See* NPRM/NOI, 32 FCC Rcd at 8038 ¶ 10, 8046-47 ¶ 40 *et seq*. ATIS *Technical Report on a Nationwide Number Portability Study* (ATIS-1000071) is available for electronic download at no

nationwide implementation of Location Routing Numbers (national LRNs); (2) non-Geographic LRNs (NGLRNs); (3) commercial agreements; and (4) iconectiv's GR-2982-CORE specification.[12] Of these proposals, the ATIS Report found that the commercial agreement option was the only model that could be supported without significant changes or impacts to NPAC or service provider systems.[13] CenturyLink agrees with this assessment, and as a result, advocates adoption of the commercial agreement approach to make incremental gains in NNP while simultaneously encouraging the deployment of NNP capable IP networks and avoiding the staggering network and system costs associated with the other alternatives.

In order for the other NNP alternatives discussed in the NOI to be successful and provide the desired public interest benefits, legacy networks must have the infrastructure and underlying systems in place to be able to route and to rate calls correctly. Moving to NNP would remove the association of a telephone number from the geographic location of a specific rate center, thereby obfuscating the originating and/or terminating caller's physical location and the NPA-NXX information typically relied upon by legacy networks for routing and billing purposes. To provide a sense of scale, CenturyLink has over 3,500 wire centers and, therefore, over 3,500 legacy TDM switches across its incumbent territory that would need to be equipped to properly rate and route calls in an NNP environment. Thus, CenturyLink is concerned that costs of proposals that require network and systems changes to achieve NNP would vastly outweigh the benefits.

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charge from the ATIS Document Center at https://www.atis.org/docstore/product.aspx?id=28281 ("ATIS Report").

[12] NOI, 32 FCC Rcd at 8046-47 ¶ 40.

[13] NOI, 32 FCC Rcd at 8050 ¶ 56.

The NOI notes concerns about how the NNP proposals in the June 2016 ATIS Report[14] would impact legacy networks and CenturyLink agrees that these concerns are valid, well-founded and substantial. From a routing perspective, it is unclear whether legacy networks are capable of performing queries on calls to NPA-NXXs outside of the LATA. As noted previously, all switches will need access to all seven (7) NPAC regions to perform the necessary queries, and CenturyLink switches lack this connectivity today. Providers' existing SS7 networks also may need to be augmented to accommodate and support LNP query dips as all NPA NXX's would need to be queried for call routing. The ability to allow all NPA NXXs in a state or across the country to reside in every switch would require system and switch equipment to be significantly upgraded or completely replaced. Given the migration away from TDM services, equipment manufacturers have discontinued or are phasing out support for TDM equipment, making it difficult (if not impossible) to modify them to support new switch-based capabilities associated with NNP.

Aside from these concerns related to routing, call rating systems that rely on the relationship between a telephone number and its rate center may not function properly. These systems and related back office support would then need to be overhauled in order to bill for local, extended area, and toll calls as appropriate in an NNP environment. System enhancements may also be necessary to support and assign the appropriate state and federal taxation charges associated with calls. Most concerning, however, is ensuring that 911 would continue to function as intended such that callback information is properly delivered to the serving public

[14] NOI, 32 FCC Rcd at 8051-52 ¶¶ 61-67 (*see* NPRM, 32 FCC Rcd at 8038 n. 21).

safety answering point ("PSAP"). The ATIS Report provides more detail about the difficulties NNP could cause.[15]

Although NNP would be implemented with the intent of enhancing competition for the benefit of consumers, certain aspects of NNP may actually cause customer confusion or frustration with respect to the legacy network. Consumers will no longer be able to determine from the dialed digits whether the call they are making is a local call or a toll call. While this is not an issue for all-distance services where pricing is not dependent on distance or rate center and LATA jurisdiction, this is an issue for legacy services which are distance- and location-sensitive. Consumers may need to adopt a uniform 10-digit dialing system to avoid post dial delays, which will trigger inconvenience and increased potential for complaints for those customers not already in an area where 10-digit dialing is required.[16]

These observations highlight that there are a variety of challenges associated with implementing NNP in a manner that triggers the need for systems or network changes. The burdens associated with these network- and systems-based NNP alternatives are substantial and difficult to justify, particularly when considered in conjunction with other important Commission objectives.

B. Resources Devoted to Making Network and Systems Changes to Implement NNP on Legacy TDM Networks Are Resources Denied to Broadband Deployment and the IP Transition.

As a practical matter, any investment in modifying legacy systems to become NNP-capable is investment that is diverted away from other key priorities; namely, broadband

[15] *See* ATIS Report n.11 *supra*, at Section 10.

[16] Without uniform 10-digit dialing, there could be call completion issues in areas where a number is ported into an NXX (894, for example) that has the same digits as the ported-out NPA (894, for example). This stands to potentially affect call processing for an entire NXX as soon as one such instance arises and switching equipment will need to distinguish whether a 7-digit call (894-XXXX) or a 10-digit call (894-XXX-XXXX) is intended.

deployment and the IP transition. The Commission just reiterated its commitment to accelerating the deployment of next-generation technologies to close the digital divide:

> [T]oo many communities remain on the wrong side of the digital divide, unable to take full part in the benefits of the modern information economy. To close that digital divide, we seek to use every tool available to us to accelerate the deployment of advanced communications networks. Accordingly, today we embrace the transition to next-generation networks and the innovative services they enable, and adopt a number of important reforms aimed at removing unnecessary regulatory barriers to the deployment of high-speed broadband networks.
>
> By removing unnecessary impediments to broadband deployment, the regulatory reforms we adopt today will enable carriers to more rapidly shift resources away from maintaining outdated legacy infrastructure and services and towards the construction of next-generation broadband networks bringing innovative new broadband services.[17]

Importantly, this commitment to accelerating the deployment of next generation networks comes with Chairman Pai's recognition that this transition cannot reasonably occur if legacy providers remain saddled with unnecessary obligations to maintain the legacy network:

> That all-IP world is one that is more resilient, more robust, and more competitive. That's why a key to closing the digital divide is maximizing providers' ability to invest in building the modern networks that fuel the Internet economy.
>
> But unneeded regulations deter many companies from investing in these new networks. Having to maintain two networks—one legacy, one modern—diverts resources away from new deployments. By definition, every dollar that is spent maintaining fading copper networks cannot be spent on fiber. And the dollars are substantial; one estimate found companies could save $45-50 in operating expenses per home each year by not having to maintain old copper facilities.[18] Nationwide, that translates into billions of dollars annually that could be devoted to next-generation networks. But that digital opportunity is denied when the FCC's rules force carriers to maintain the networks of yesteryear.[19]

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[17] *Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, WC Docket No. 17-84, Report and Order, Declaratory Ruling, and Further Notice of Proposed Rulemaking, FCC 17-154, ¶¶ 2-3 (rel. Nov. 29, 2017). ("November 29, 2017 Order").

[18] *See* Comments of Corning Incorporated, Attachment A at 31, WC Docket No. 17-84 (filed June 15, 2017), as referenced in Statement of Chairman Ajit Pai, November 29, 2017 Order.

[19] Statement of Chairman Ajit Pai, November 29, 2017 Order.

In this proceeding, the Commission should act in a manner that is consistent with these objectives. Requiring providers to modify the legacy network for NNP is a prime example of the type of regulatory obstacle to the IP transition that the Commission has just committed to eliminate. The case against requiring additional substantial investment in the legacy network to enable NNP becomes even more compelling when one considers that the end-state network that is the ultimate goal of the IP transition will itself be NNP-capable. It would be beyond reason to delay the IP transition as a result of a regulatory mandate to build new capabilities into the legacy TDM network that is used by only a dwindling minority of customers, when those capabilities – and more – would exist in the IP network and when there are less burdensome alternatives to further NNP that would serve the public interest. To avoid this anomalous result, the Commission should pursue moving towards NNP in a measured way that avoids triggering substantial costs and burdens for legacy networks or delaying the IP transition and the concomitant benefits a modernized network will bring. Proceeding in this manner will strike the right balance among important Commission objectives and best serve the public interest.

C. To Realize NNP, the Commission Should Encourage the Use of Commercial Agreements and the Transition of TDM Networks to IP.

The Commission can strike this balance by (1) encouraging the use of commercial agreements as a means to make incremental progress towards NNP and (2) facilitating the transition of legacy TDM networks to next-generation IP networks without delay. Commercial agreements are available today and do not carry the extreme costs and other undesirable inefficiencies attendant with the other NNP approaches described in the NOI. These agreements would enable regional wireless providers to establish points of presence in rate centers outside of their territory to enable porting or permanent roaming and help level the competitive playing field between them and their nationwide peers, absent burdensome, heavy-handed regulation or

substantial investment that would just end up stranded and provide little, if any, benefit to the IP transition. This approach also stands to be more expeditious than the other approaches since it does not require time-consuming, costly network or systems modifications that are gating items to implementation of other options.

In addition to encouraging commercial agreements, the Commission should also facilitate the transition of legacy networks to next generation IP networks in order to help realize NNP. The more quickly and efficiently legacy providers can make this transition, the more quickly the benefits of a next generation network can be realized by the public. These benefits include, but extend well beyond, achieving NNP.[20] ILECs are now overbuilding their copper networks with fiber to provide the very functions that consumers are demanding most but still face regulatory hurdles which slow the transition. While the Commission's recent action on copper retirement and Section 214(a) discontinuance should help remove some hurdles to accelerate the transition, these efforts will be for naught if providers remain required to engineer new capabilities into legacy networks.

V. CONCLUSION.

To serve the public interest, the Commission must ensure that the benefits of NNP outweigh its costs. Requiring providers to modify legacy TDM networks to accommodate NNP would be a monumental undertaking that risks a tremendous amount of sunk cost and stranded investment to the detriment of advanced network deployment. To avoid this undesirable result, CenturyLink encourages the Commission to pursue moving towards NNP in a measured way using commercial agreements while also promoting the transition from legacy to advanced

[20] *See, e.g.*, NOI, 32 FCC Rcd at 8052 ¶ 68, wherein the Commission seeks comment on how future improvements to number portability administration might facilitate NNP within the context of an evolving and increasingly IP-based network.

networks. Proceeding in this manner will strike the right balance among important Commission objectives and best serve the public interest.

Respectfully submitted,

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